

Redwood Meadows Project Water Quality Analysis

July 20, 2012 v1



Project

- To determine nature of water being discharged onto surface land within meters of Elbow River
- To evaluate the impact of this discharge onto Elbow River Water Quality

Sample Plan

- Obtain 2 samples Upriver from point of Discharge (At Redwood Meadows)
- Obtain 4 samples (2 sets of 2 taken 10 minutes apart) from Sample Discharge
- Obtain 4 samples Downriver from point of discharge (2 at Highway 22X crossing and 2 at Highway 8 crossing)

4

Sample Sites

- Obtain 2 samples Upriver from point of Discharge (At Redwood Meadows)



GPS: 50.99087,-114.50739

Elevation: 1257m

pH = 7.86, 7.87

EC= 0.31, 0.30

Total Coliform = 155, 161

Fecal Coliform = 5, 8

Sample Sites

- Obtain 4 samples (2 sets of 2 taken 10 minutes apart) from Sample Discharge



GPS: 51.00695,-114.48683

Elevation: 1231m

pH = 6.97, 6.95, 7.06, 6.97

EC= 0.62, 0.62, 0.61, 0.63

Total Coliform = TNTC

Fecal Coliform= 32.5, 40, 85, 75

Sample Sites

- Obtain 2 samples Downriver from point of discharge at Highway 22X crossing



GPS: 51.03245,-114.46690

Elevation: 1197m

pH = 7.77, 7.71

EC= 0.30, 0.32

Total Coliform = 288, 194

Fecal Coliform= 13, 14

Sample Sites

- Obtain 2 samples Downriver from point of discharge at Highway 8 crossing



GPS: 51.01696,-114.24097

Elevation: 1106m

pH = 7.76, 7.74

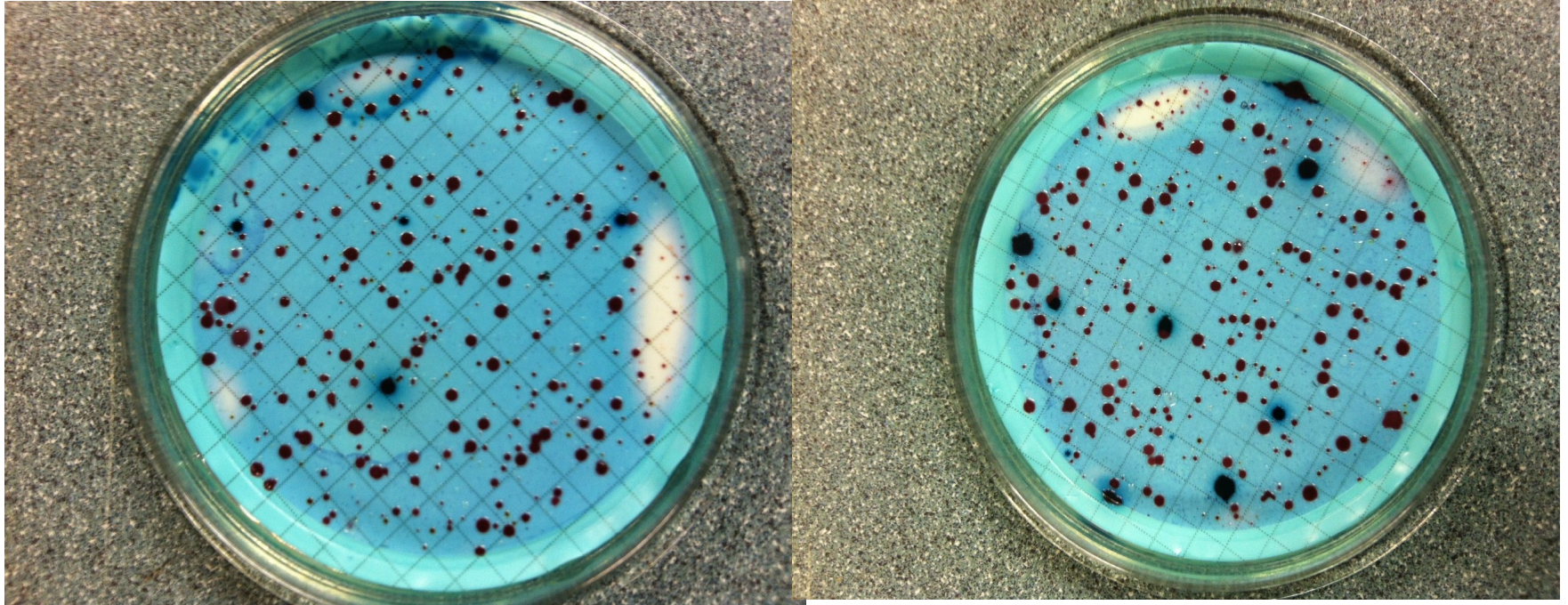
EC= 0.36, 0.34

Total Coliform = 190, 198

Fecal Coliform= 22, 24

Sample Plates

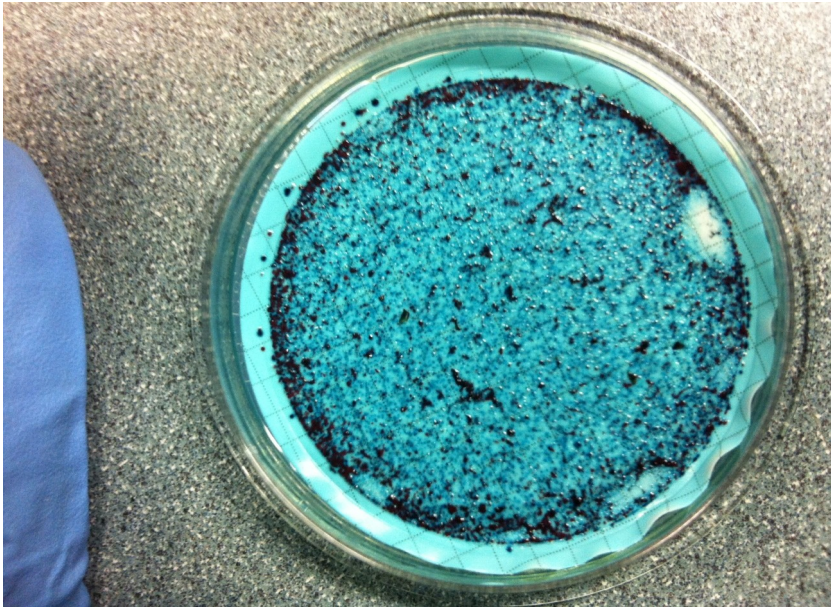
Up River from Discharge



Note: Red = Coliforms, Blue = Fecal Coliforms

Sample Plates

At Discharge



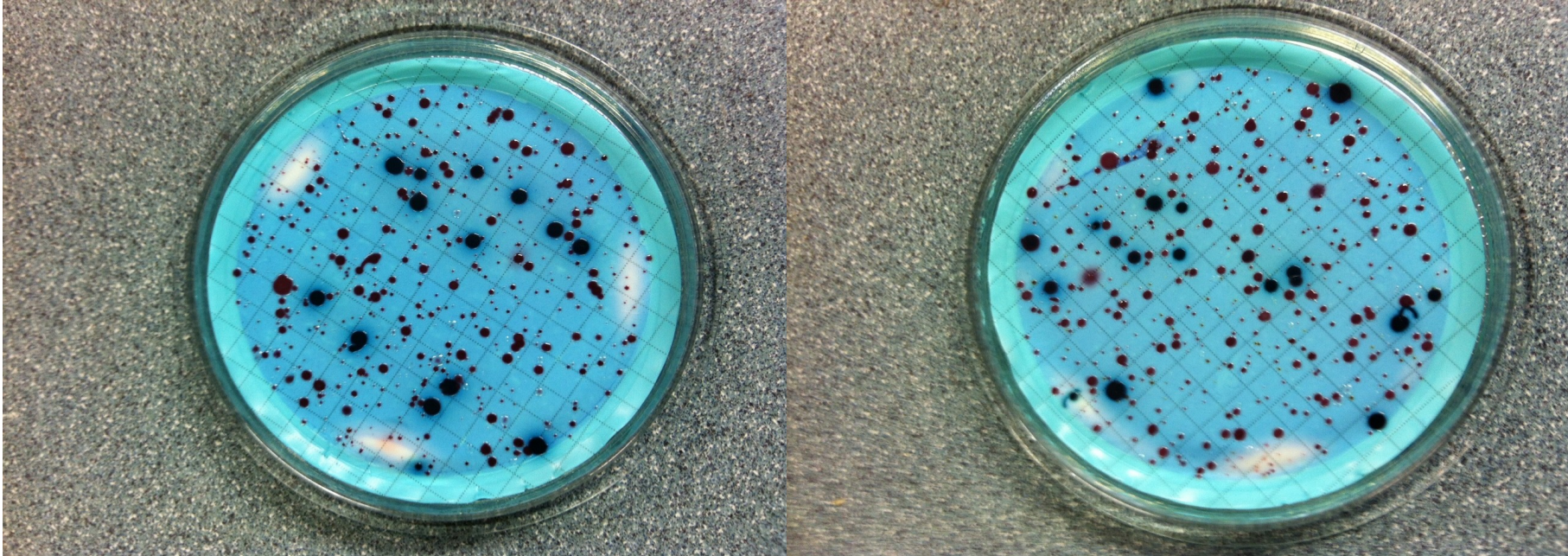
Note that within 24 hours Total Coliforms are No Numerous To Count (TNTC)

This same on all 4 samples, and again at 40% dilution

Note: Red = Coliforms, Blue = Fecal Coliform

Sample Plates

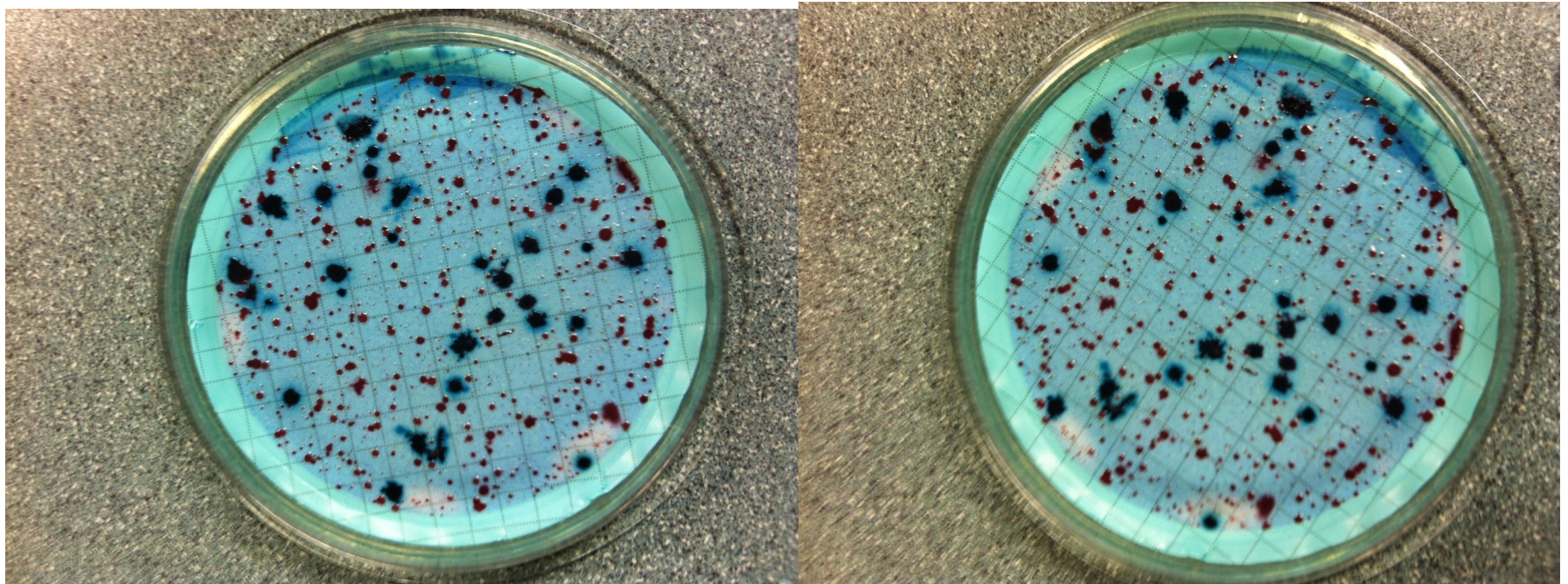
Down River From Discharge Hwy 22X Bridge



Note: Red = Coliforms, Blue = Fecal Coliform

Sample Plates

Down River From Discharge Hwy 8 Bridge



Note: Red = Coliforms, Blue = Fecal Coliforms

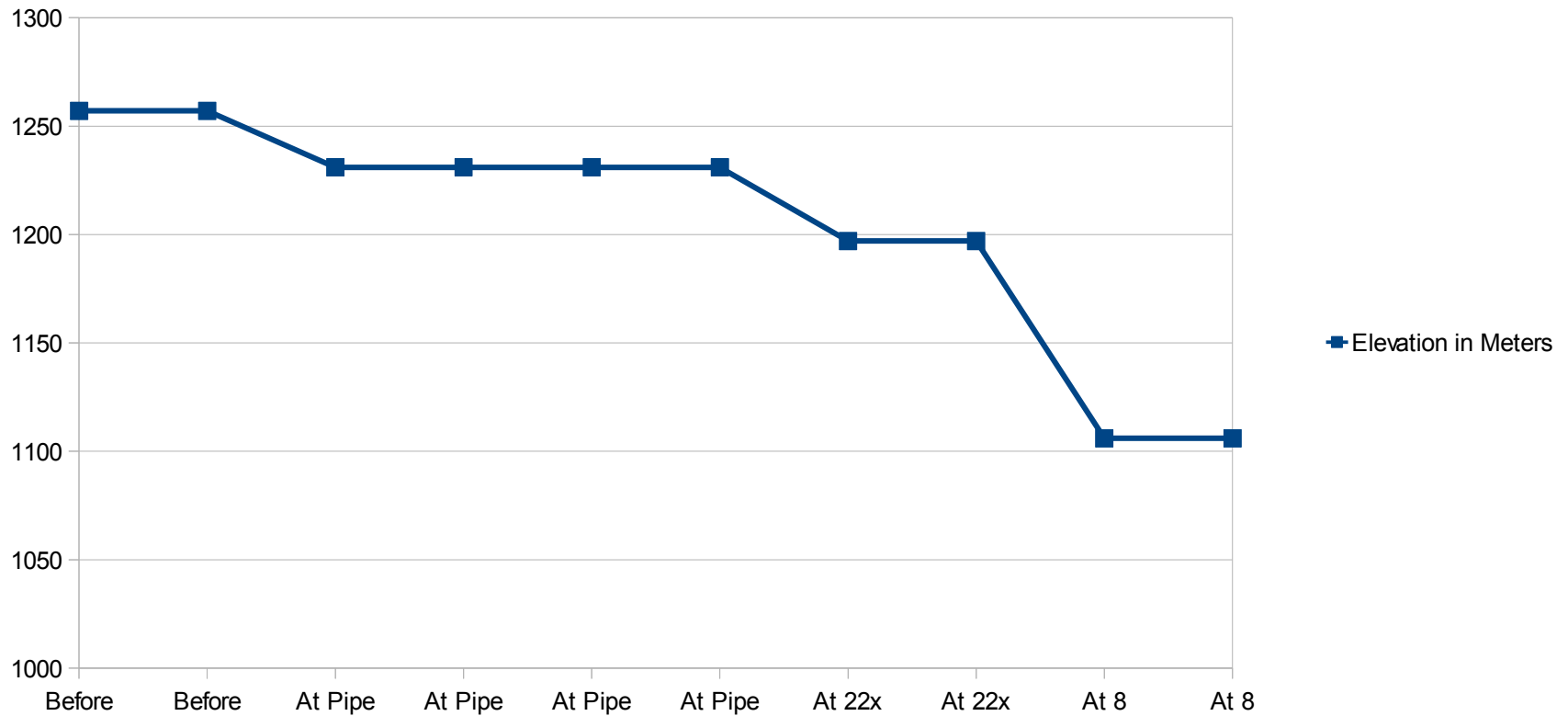
Results Table:

Sample Name	GPS Location	Site	pH	Guideline	EC	Guideline	Total Coliforms	Guideline	Fecal Coliforms	Guideline
Sample 2A	50.99097,-114.50739	Before	7.86	6.5 to 8.5	0.31	<1000	155	<1000	5	<200
Sample 2B	50.99097,-114.50739	Before	7.87	6.5 to 8.5	0.3	<1000	161	<1000	8	<200
Sample 3A	51.00695,-114.48683	At Pipe	6.97	6.5 to 8.5	0.62	<1000	1000	<1000	32.5	<200
Sample 3B	51.00695,-114.48683	At Pipe	6.95	6.5 to 8.5	0.62	<1000	1000	<1000	40	<200
Sample 4A	51.00695,-114.48683	At Pipe	7.06	6.5 to 8.5	0.61	<1000	1000	<1000	85	<200
Sample 4B	51.00695,-114.48683	At Pipe	6.97	6.5 to 8.5	0.63	<1000	1000	<1000	75	<200
Sample 1A	51.03245,-114.46690	At 22x	7.77	6.5 to 8.5	0.3	<1000	288	<1000	13	<200
Sample 1B	51.03245,-114.46690	At 22x	7.71	6.5 to 8.5	0.32	<1000	194	<1000	14	<200
Sample 5A	51.01696,-114.24097	At 8	7.76	6.5 to 8.5	0.36	<1000	190	<1000	22	<200
Sample 5B	51.01696,-114.24097	At 8	7.74	6.5 to 8.5	0.34	<1000	198	<1000	24	<200

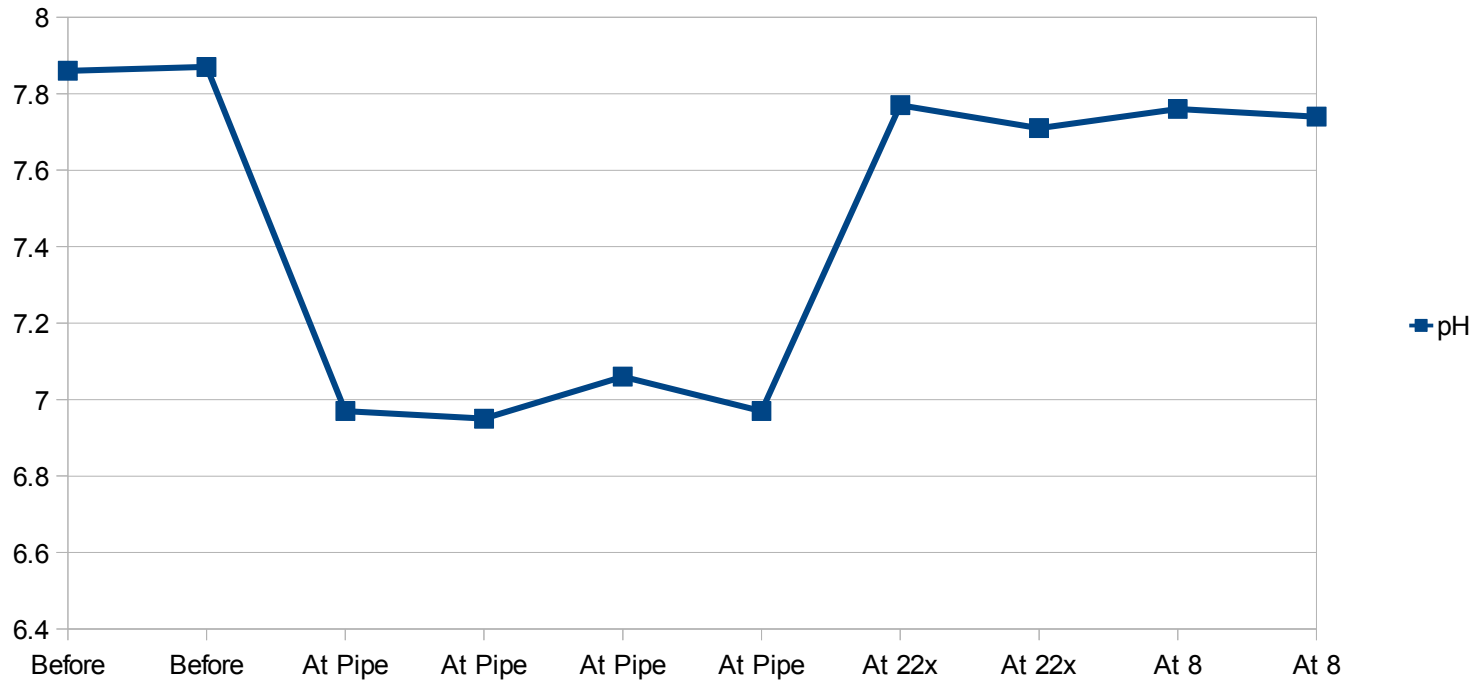
Note: As a precaution 1000 has been used for Total Coliforms as within 24 hours Total Coliforms are No Numerous To Count (TNTC)

This same on all 4 samples, and again at 40% dilution, further dilution is required

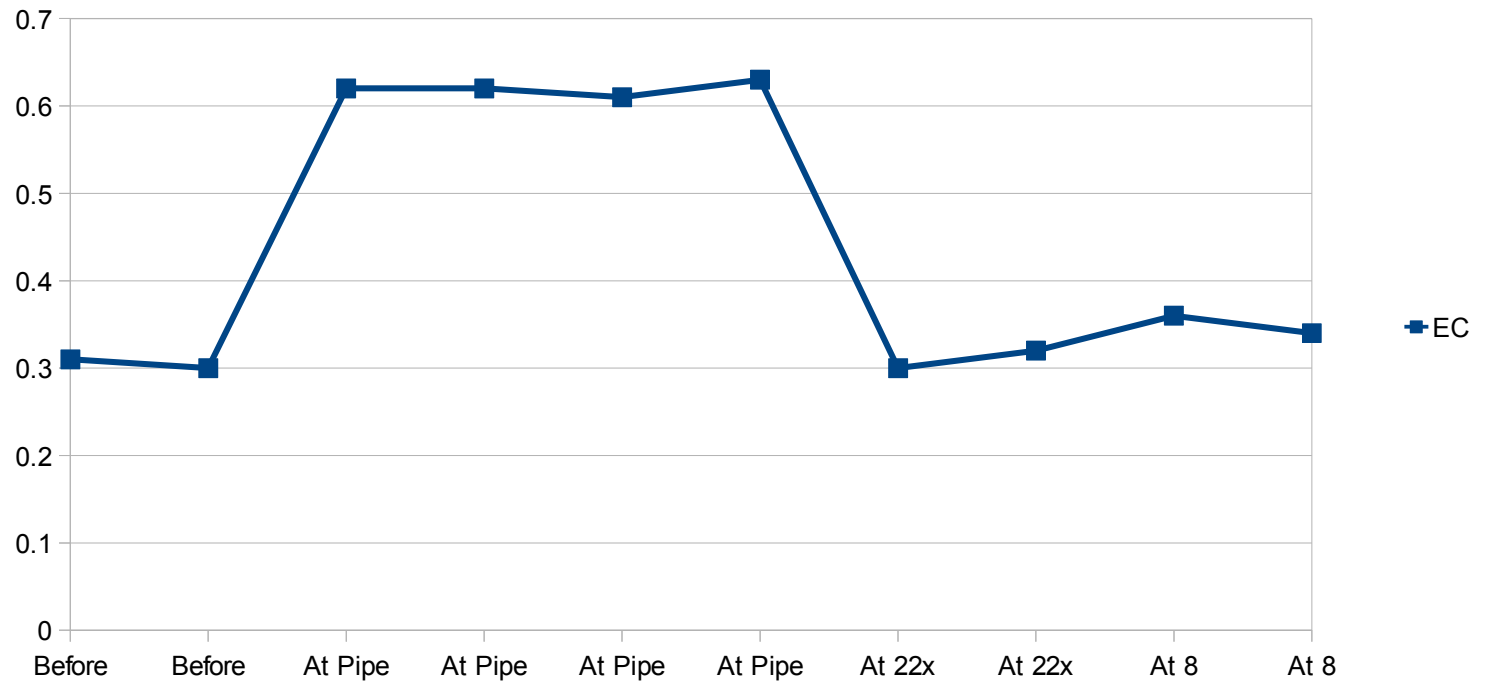
Elevation Chart



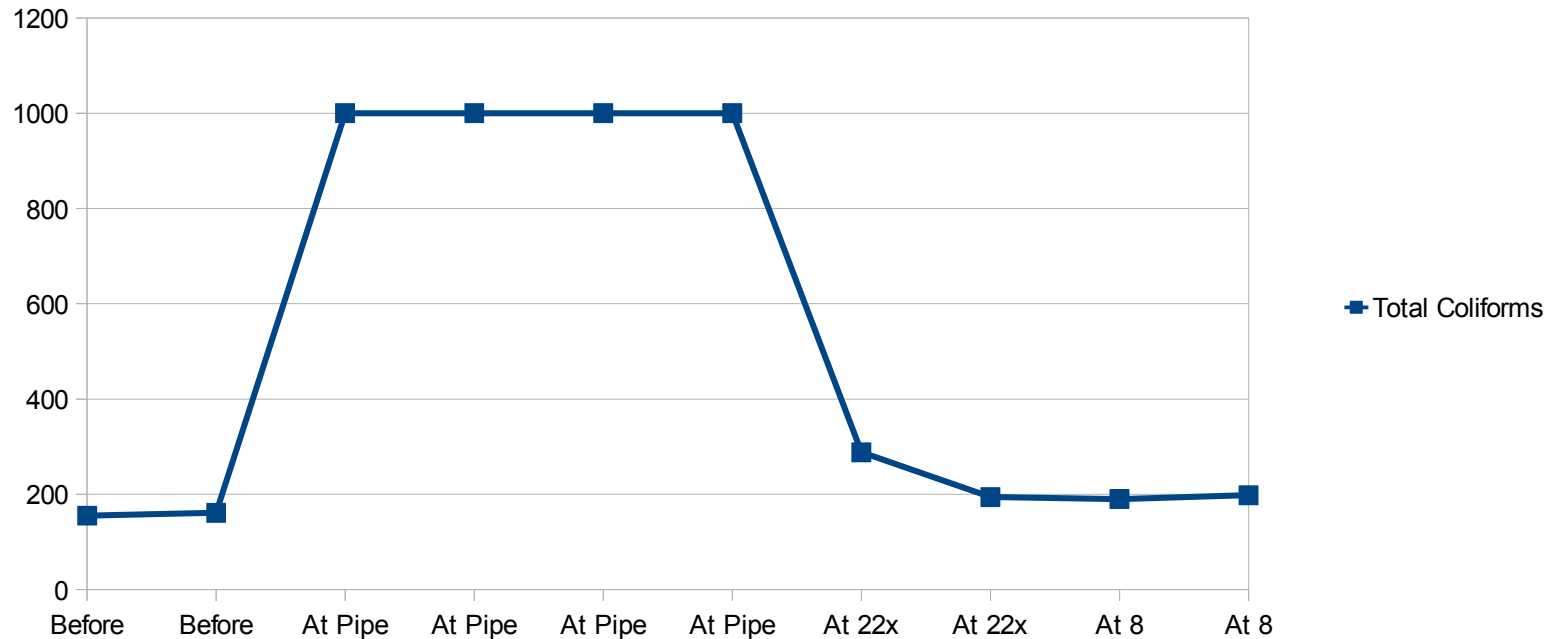
pH Results:



EC Results



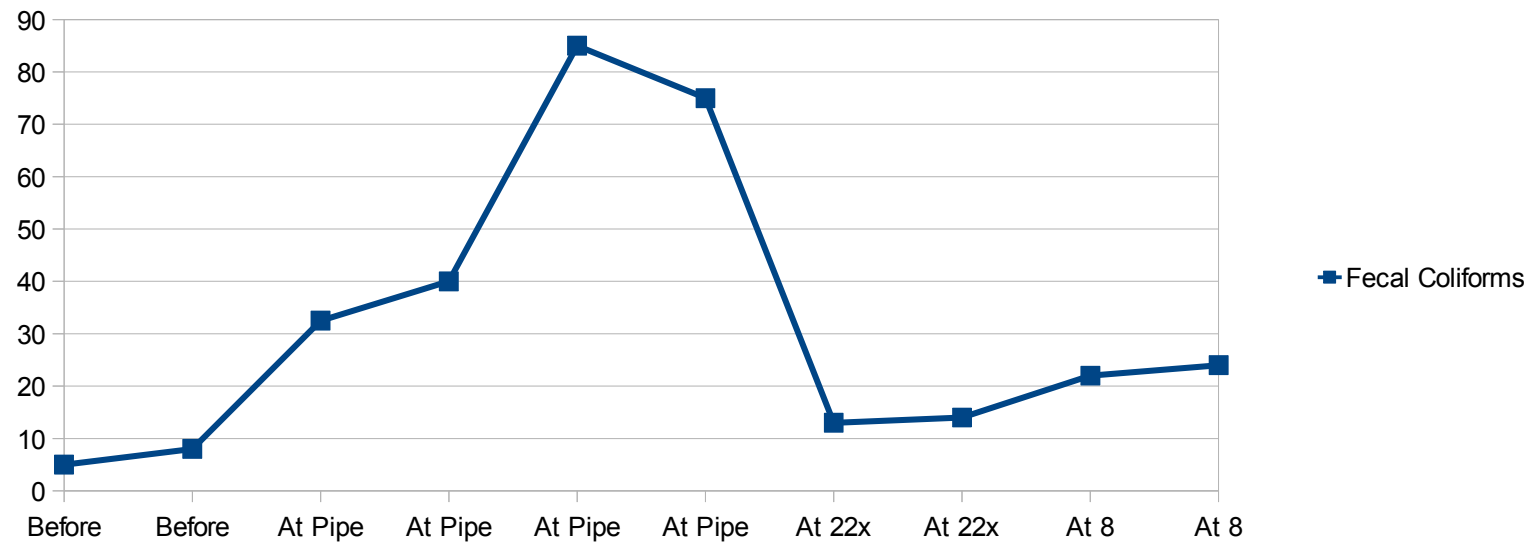
Total Coliforms



Note: As a precaution 1000 has been used for Total Coliforms as within 24 hours Total Coliforms are No Numerous To Count (TNTC)

This same on all 4 samples, and again at 40% dilution, further dilution is required

Fecal Coliforms



Summary:

- Discharge from pipe is consistent with raw, untreated sewage and exceeds Alberta Water Recreational Use Guidelines
- Levels of Total Coliforms & Fecal Coliforms (Ecoli) are higher down river than upriver from point of discharge but do not exceed Alberta Recreational Use Water Guidelines
- Additional analysis is required to show affect discharge will have on Elbow River fish

For More Info Please Contact

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